

SELECTIVE AVAILABILITY (SA) DISCONTINUED...

WHAT HAPPENED TO SELECTIVE AVAILABILITY?

As of midnight, 5/1/2000, the U.S. Department of Defense discontinued its intentional degradation of Global Positioning System (GPS) signals, a process known as ***selective availability*** (SA). Usually the largest source of error affecting GPS data, SA limited the accuracy of civilian GPS data to about ± 100 meters when activated. Now, without SA *and* without differential correction, GPS data accuracy is thought to be about ± 20 meters. The elimination of SA has the potential to simplify some GPS fieldwork and to benefit many civilian activities such as transportation, navigation, emergency response, recreation, wildlife tracking, and resource management.

DIFFERENTIAL CORRECTION REMOVES ERROR FROM GPS DATA

Many factors, in addition to SA, can introduce error that affects the accuracy of GPS data - conditions in the ionosphere and atmosphere, signal interference by obstacles (e.g., buildings, trees), the available number of satellites and their geometry, and others. A technique called ***differential correction*** removes SA-related error *and* error from many of these other sources. GPS data can be differentially corrected as it is being collected in the field (using a *real-time* beacon receiver) or back in the office (*post-processing* using downloaded correction data). In either case, signals received by a GPS unit at an unknown location in the field (the *rover*) are compared with those from a receiver fixed at a highly accurate, surveyed location (the *base station*). Correction values are calculated and applied to the rover data to increase its accuracy to 5 meters or less, depending on the type of receiver used.

DO WE STILL NEED TO DO DIFFERENTIAL CORRECTION?

Although SA has been discontinued, **the other sources of positional error still exist**, and they can cause the accuracy of GPS data to vary widely under different conditions. If you followed consistent and technically sound GPS data collection procedures (including differential correction) before SA was turned off, we recommend that you...

continue to use differential correction until you are confident that the accuracy of uncorrected GPS data will adequately support your business needs!

TESTING GPS DATA ACCURACY

Many groups are **currently testing** the accuracy of uncorrected GPS data with SA turned off. We expect these tests to show that GPS data accuracy is still dependent on non-SA sources of error, as well as on the type of GPS receiver used and the number of x-y coordinates collected. The following federal Interagency GPS Executive Board web site provides general information about SA, and what these changes may mean for you. <http://www.igeb.gov> (NOW LEAVING DNR...⇒)